I CLAIM:

1. A method for generating or heating steam or heating other process streams, comprising:
oxidizing a fuel at a reaction temperature to generate heat via a flameless reaction; and
using the heat generated via the flameless reaction to convert water to steam or heat other process streams,

wherein the reaction temperature is controlled to minimize the formation of NO_x.

2. The method of Claim 1 wherein the reaction temperature is controlled by adjusting the sizing or porosity of a fuel distribution system.

3. The method of Claim 1 wherein the reaction temperature is controlled by adjusting one or more process variables selected from the group consisting of reactant flow rates, reactant pressures, reactant concentrations, reactant ratios, and the use or non use of an oxidation catalyst.

4. The method of Claim 3 wherein the one or more process variables affecting the combustion temperature are adjusted by a computer.

5. The method of Claim 4 wherein the computer is a controller.

6. The method of Claim 5 wherein the controller is a feedback loop between a sensor and a process controller.

7. The method of Claim 6 wherein the process controller is a flow controller or a pressure controller.

8. The method of Claim 6 wherein the sensor is a flue gas NOx sensor.

9. The method of Claim 8 wherein the temperature is controlled by adjusting the reactant pressure, the reactant is fuel, and which in turn adjusts the amount of fuel being fed to the flameless reaction.

10. The method of Claim 1 wherein the amount of NO_x present is in a flue gas from the flameless reaction, and is present at less than about 10 PPMv.

11. The method of Claim 1 wherein the amount of NO_x present is less than about 5 PPMv.

12. The method of Claim 1 wherein the amount of NO_x present is less than about 3 PPMv.

13. The method of Claim 1 wherein the reaction temperature is less than about 2600°F (1430°C)

14. The method of Claim 1 wherein the reaction temperature is less than about 1600°F (871°C).

15. The method of Claim 1 wherein the reaction temperature is greater than the auto-ignition temperature of the fuel and the difference between the reaction temperature and the auto-ignition temperature of the fuel is less than or equal to about 100°F (38°C).

16. The method of Claim 15 wherein the difference between the reaction temperature and the auto-ignition temperature of the fuel is less than or equal to about 75°F (24°C).

17. The method of Claim 16 wherein the difference between the reaction temperature and the auto-ignition temperature of the fuel is less than or equal to about 50°F (10°C).

18. The method of Claim 17 wherein the difference between the reaction temperature and the auto-ignition temperature of the fuel is less than or equal to about 25°F (-4°C).

19. The method of Claim 1 further comprising adding steam into the fuel to reduce coking during the reaction.

20. The method of Claim 1 further comprising using the heater in a hydrocarbon cracking process, a distillation process, a reforming process, to heat a process stream, or combinations thereof.

21. A process heater comprising:

a reaction zone wherein a fuel is oxidized to generate heat via a flameless reaction;

a heating zone wherein a process stream temperature is increased using heat from the flameless reaction; and

a device for adjusting one or more process variables selected from the group consisting of reactant flow rates, reactant pressures, reactant concentrations, reactant ratios, and the use or non use of an oxidation catalyst.

22. The process heater of Claim 21 wherein the device for adjusting one or more process variables is a computer.

23. The process heater of Claim 22 wherein the computer is a controller.

24. The process heater of Claim 23 wherein the controller is a feedback loop between a sensor and a process controller.

25. The process heater of Claim 24 wherein the process controller is a flow controller or a pressure controller.

26. The process heater of Claim 24 wherein the sensor is a flue gas NOx sensor.

27. A process heater, comprising:

a reaction zone wherein fuel is oxidized to generate heat via a flameless reaction;

a heating zone wherein a process stream temperature is increase using heat from the flameless reaction; and

a fuel distribution system wherein the sizing or porosity of the fuel distribution system is selected to control the reaction temperature of the process heater.